## WHAT IS CLAIMED IS:

1.- A composition which can be polymerized and/or crosslinked by dehydrocondensation for a battery electrolyte comprising:

a) at least one organohydropolysiloxane (POS) (A) having, per molecule, at least 2 hydrogen atoms directly bonded to silicon atoms;

b) at least one organohydroxypolysiloxane (POS) (B) having, per molecule, at least 2 –OH groups directly bonded to silicon atoms;

c) an effective amount of at least one dehydrocondensation catalyst (C); and

d) at least one electrolyte salt (D);

with the additional condition that the POS (A) and/or the POS (B) comprise(s), per molecule, at least one siloxyl unit comprising at least one group directly bonded to a silicon atom comprising a polyoxyalkylene (Poa) ether functional group.

2.- The composition which can be polymerized and/or crosslinked by dehydrocondensation for a battery electrolyte as claimed in claim 1, comprising:

a) at least one organohydropolysiloxane (POS) (A) having, per molecule, at least 2 hydrogen atoms directly bonded to silicon atoms and at least one group directly bonded to a silicon atom comprising a polyoxyalkylene (Poa) ether functional group;

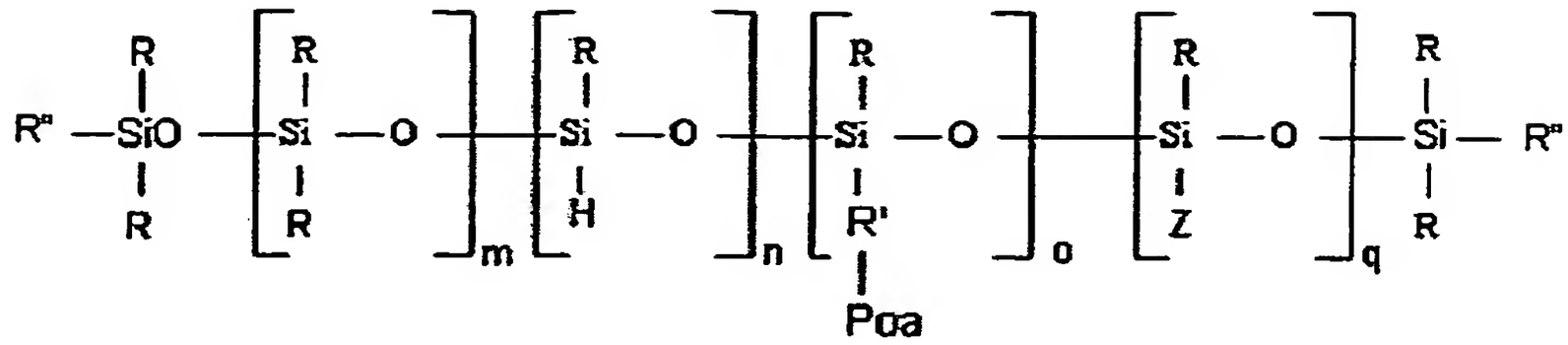
b) at least one organohydroxypolysiloxane (POS) (B) having, per molecule, at least 2 –OH groups directly bonded to silicon atoms,

c) an effective amount of at least one dehydrocondensation catalyst (C); and

d) at least one electrolyte salt (D).

3.- The composition which can be polymerized and/or crosslinked by dehydrocondensation for a battery electrolyte as claimed in either of the preceding claims, characterized in that the polyoxyalkylene (Poa) ether functional group of the POS (A) is of polyoxyethylene ether and/or polyoxypropylene ether type.

4.- The composition which can be polymerized and/or crosslinked by dehydrocondensation for a battery electrolyte as claimed in one of the preceding claims, characterized in that the POS (A) is an essentially linear random or block copolymer of following mean general formula (I):



which can optionally comprise units of formula $RSiO_{3/2}$ (T),

in which formula:

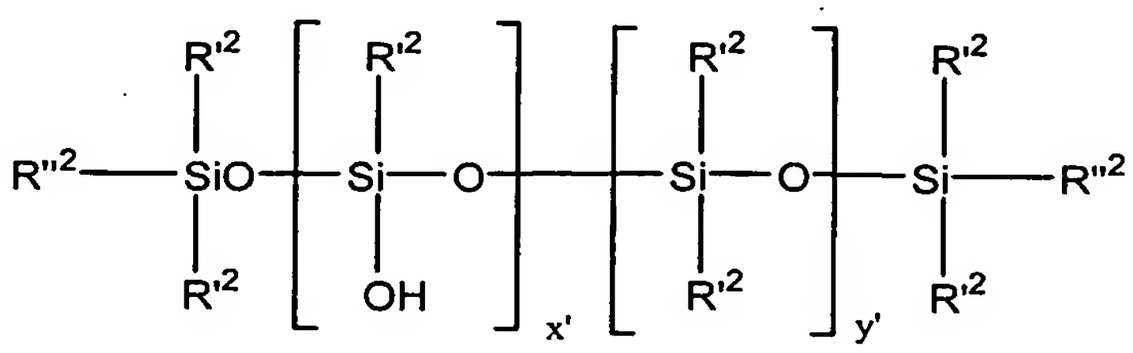
- the R' symbols, which are identical to or different from one another, each represent a radical comprising from 2 to 50 carbon atoms;
- the R and R" symbols, which are identical to or different from one another, each represent:
  - a hydrogen or a linear or branched alkyl radical comprising 1 to 8 carbon atoms which is optionally substituted by at least one halogen, preferably fluorine, the alkyl radicals preferably being methyl, ethyl, propyl, octyl and 3,3,3-trifluoropropyl,
  - an optionally substituted cycloalkyl radical comprising between 5 and 8 cyclic carbon atoms,
  - an optionally substituted aryl radical comprising between 6 and 12 carbon atoms, or
  - an aralkyl radical having an alkyl part comprising between 5 and 14 carbon atoms and an aryl part comprising between 6 and 12 carbon atoms which is optionally substituted on the aryl part by halogens, alkyls and/or alkoxyls comprising 1 to 3 carbon atoms,
- the Z symbols, which are identical to or different from one another, each represent a hydroxyl or alkoxyl radical,
- the Poa symbols, which are identical to or different from one another, each represent groups of polyoxyalkylene ether type, preferably of polyoxyethylene and/or polyoxypropylene ether type;
- m is an integer or fractional number greater than or equal to 0;
- n is an integer or fractional number greater than or equal to 2 and can optionally be equal to 0, with the condition that, when n is equal to 0, then the two R" groups are hydrogen atoms;
- o is an integer or fractional number greater than or equal to 1, and
- q is an integer or fractional number greater than or equal to 0

5.- The composition which can be polymerized and/or crosslinked by dehydrocondensation for a battery electrolyte as claimed in claim 4, characterized in that:

- m and n are between 2 and 200;
- o is between 1 and 50; and
- q is between 0 and 10.

6.- The composition which can be polymerized and/or crosslinked by dehydrocondensation for a battery electrolyte as claimed in claim 4, characterized in that the -R'-Poa groups are chosen from the following groups:
$-(CH_2)_3-O-(CH_2CH_2-O)_m-CH_3$; $-(CH_2)_2-O-(CH_2CH_2-O)_m-CH_3$;
$-(CH_2)_3-O-(CH(CH_3)-CH_2-O)_m-CH_3$ and $-(CH_2)_2-O-(CH(CH_3)-CH_2-O)_m-CH_3$
with $m \leq 4$ and preferably between 6 and 12.

7.- The composition which can be polymerized and/or crosslinked by dehydrocondensation for a battery electrolyte as claimed in either of claims 1 and 2, characterized in that the POS (B) is an essentially linear random or block copolymer of following mean general formula (II):

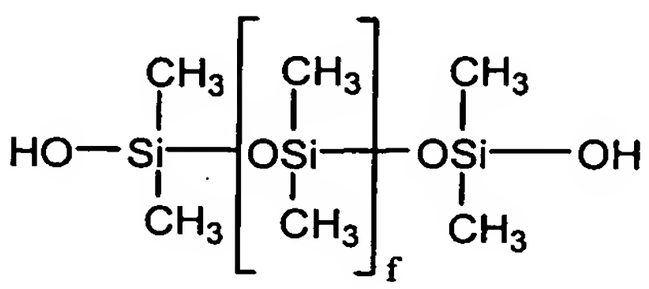


which can optionally comprise units of formula $RSiO_{3/2}$ (T) ,
in which formula:

- x' is an integer or fractional number greater than or equal to 2 which can optionally be equal to 0;
- y' is an integer or fractional number greater than or equal to 0;
- the $R'^2$ and $R''^2$ symbols, which are identical to or different from one another, each represent:
  - a linear or branched alkyl radical comprising 1 to 8 carbon atoms which is optionally substituted by at least one halogen, preferably fluorine, the alkyl radicals preferably being methyl, ethyl, propyl, octyl and 3,3,3-trifluoropropyl,
  - an optionally substituted cycloalkyl radical comprising between 5 and 8 cyclic carbon atoms,
  - an optionally substituted aryl radical comprising between 6 and 12 carbon atoms, and/or
  - an aralkyl radical having an alkyl part comprising between 5 and 14 carbon atoms and an aryl part comprising between 6 and 12 carbon atoms which is optionally substituted on an aryl part,

with the condition that, when x' = 0, then the two $R''^2$ groups correspond to –OH.

8.- The composition which can be polymerized and/or crosslinked by dehydrocondensation for a battery electrolyte as claimed in one of claims 1 to 2 and 7, characterized in that the POS (B) is an α,ω-bis(hydroxy)polydimethylsiloxane of following mean general formula (III):

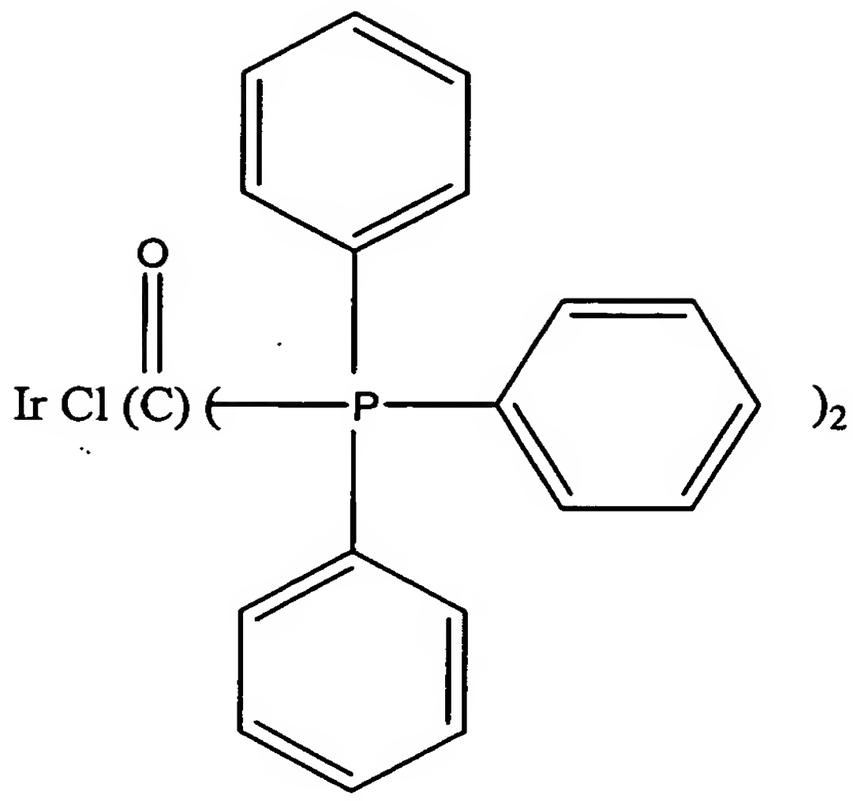


with f greater than or equal to 0 and preferably $0 \leq f \leq 200$.

9.- The composition which can be polymerized and/or crosslinked by dehydrocondensation for a battery electrolyte as claimed in claim 1 or 2, characterized in that the dehydrocondensation catalyst (C) is a metal complex or derivative based on platinum, boron, rhodium, palladium, tin or iridium.

10.- The composition which can be polymerized and/or crosslinked by dehydrocondensation for a battery electrolyte as claimed in claim 9, characterized in that, when the dehydrocondensation catalyst (C) is based on tin or on platinum, the proportions of the POS (A) and of the POS (B) are determined so that the ratio $r^1$= number of SiH units of the POS (A)/number of SiOH units of the POS (B) is between 0.5 and 5 and preferably between 0.9 and 2.1.

11.- The composition which can be polymerized and/or crosslinked by dehydrocondensation for a battery electrolyte as claimed in claim 9, characterized in that the catalyst (C) is chosen from the group consisting of the following catalysts:
dibutyltin dilaurate, a Karstedt catalyst and the iridium catalyst of following formula (IV):




12.- The composition which can be polymerized and/or crosslinked by dehydrocondensation for a battery electrolyte as claimed in claim 1 or 2, characterized in that the electrolyte salt (D) is composed:

- of a cation chosen from the group consisting of the following entities: metal cations, ammonium ions, amidinium ions and guanidinium ions; and
- of an anion chosen from the group consisting of the following entities: chloride ions, bromide ions, iodide ions, perchlorate ions, thiocyanate ions, tetrafluoroborate ions, nitrate ions, $AsF6^-$, $PF6^-$, stearylsulfonate ions, trifluoromethanesulfonate ions, octylsulfonate ions, dodecylbenzenesulfonate ions, $R^4SO_3^-$, $(R^4SO_2)(R^5SO_2)N^-$ and $(R^4SO_2)(R^5SO_2)(R^6SO_2)C^-$, in each formula, the $R^4$, $R^5$ and $R^6$ radicals are identical or different and represent electron-withdrawing groups.

13.- The composition which can be polymerized and/or crosslinked by dehydrocondensation for a battery electrolyte as claimed in claim 12, characterized in that the $R^4$, $R^5$ et $R^6$ radicals are electron-withdrawing groups of perfluoroaryl or perfluoroalkyl type, the perfluoroalkyl group comprising from 1 to 6 carbon atoms.

14.- The composition which can be polymerized and/or crosslinked by dehydrocondensation for a battery electrolyte as claimed in claim 12, characterized in that the electrolyte salt (D) comprises a metal cation chosen from the alkali metals and alkaline earth metals of Groups 1 and 2 of the Periodic Table [Chem. & Eng. News, vol. 63, No. 5, 26, of February 4, 1985].

15.- The composition which can be polymerized and/or crosslinked by

dehydrocondensation for a battery electrolyte as claimed in claim 14, characterized in that the electrolyte salt (D) comprises a metal cation of lithium type.

16.- The composition which can be polymerized and/or crosslinked by dehydrocondensation for a battery electrolyte as claimed in claim 15, characterized in that the amount of the electrolyte salt (D) is determined so that the O/Li molar ratio is between 15 and 40 and preferably between 20 and 25.

17.- The composition which can be polymerized and/or crosslinked by dehydrocondensation for a battery electrolyte as claimed in claims 1, 2, 15 or 16, characterized in that the electrolyte salt (D) is chosen from the group consisting of the following compounds:
$LiClO_4$, $LiBF_4$, $LiPF_6$, $LiAsF_6$, $LiCF_3SO_3$, $LiN(CF_3SO_2)_2$, $LiN(C_2F_5SO_2)_2$ and a mixture of these compounds.

18.- The composition which can be polymerized and/or crosslinked by dehydrocondensation for a battery electrolyte as claimed in claim 12, characterized in that the metal cation is chosen from transition metals.

19.- The composition which can be polymerized and/or crosslinked by dehydrocondensation for a battery electrolyte as claimed in claim 18, characterized in that the metal cation is chosen from the group consisting of manganese, iron, cobalt, nickel, copper, zinc, calcium, manganese and silver.

20.- The composition which can be polymerized and/or crosslinked by dehydrocondensation for a battery electrolyte as claimed in one of the preceding claims, characterized in that it comprises an organic electrolyte (E).

21.- The composition which can be polymerized and/or crosslinked by dehydrocondensation for a battery electrolyte as claimed in claim 20, characterized in that the organic electrolyte (E) is chosen from the group consisting of the following compounds:
propylene carbonate, ethylene carbonate, diethyl carbonate, dimethyl carbonate, ethyl methyl carbonate, γ-butyrolactone, 1,3-dioxolane, dimethoxyethane, tetrahydrofuran, dimethyl sulfoxide and polyethylene glycol dimethyl ether.

22.- A polymer electrolyte for a battery obtained by polymerization and/or

crosslinking by the dehydrocondensation route, which dehydrocondensation is optionally thermally activated, of a polymerizable and/or crosslinkable composition as claimed in one of claims 1 to 21.

23.- A polymer battery comprising a polymer electrolyte as claimed in claim 22 positioned between an anode and a cathode.

24.- The polymer battery as claimed in claim 22, characterized in that at least one of the constituents of the cathode is chosen from the group consisting of the following compounds:

lithium metal, lithium alloys, inorganic materials comprising lithium insertions and carbonate materials comprising lithium insertions.